

IN THE CLAIMS

Please amend the claims as follows. Any additional differences in the claims below and the previous state of the claims are unintentional and in the nature of a typographical error.

1.-20. (Cancelled).

21. (Currently Amended) A system ~~on a sheet making machine for controlling one or more properties of a sheet of material after completing forming said sheet using said material, said system~~ comprising:

a plurality of actuators distributed in ~~[[the]]~~ a cross-machine direction ~~of a sheet-making machine~~ at respective fixed positions over ~~[[said]]~~ a sheet of material, each actuator ~~[[being]]~~ operable to perform (i) a first control action with a magnitude on a slice of ~~[[said]]~~ the sheet of material, ~~the actuator also being operable to perform and~~ (ii) a second control action to manipulate a cross-directional shape within ~~[[said]]~~ the slice, each of said plurality of actuator ~~s being~~ controllable to vary ~~[[the]]~~ one or more properties of ~~[[said]]~~ the sheet of material by varying both ~~[[said]]~~ the magnitude and ~~[[said]]~~ the cross-directional shape within ~~[[said]]~~ the slice;

at least one scanner ~~s distributed over said sheet of material~~ operable to measure ~~properties data about the~~ one or more properties of ~~[[said]]~~ the sheet of material; and

a controller in communication with ~~[[said]]~~ the at least one scanner ~~s for calculating said~~ and operable to calculate the first and second control actions ~~and said second control action for~~

~~each of said plurality of actuator~~ [[s,]] and ~~to implement ing said~~ the first and second control actions and said second control action at each of ~~said plurality of actuator~~ [[s]] such that [[said]] the actuators co-operate to adjust the one or more properties of [[said]] the sheet of material to one or more desired targets.

22. (Currently Amended) The system of claim 21, ~~in which each of said plurality of wherein each~~ actuator [[s]] comprises a steam actuator having an outlet chamber for releasing steam to [[said]] the sheet of material with the cross-direction position and wherein dimensions of [[each]] the outlet chamber being manipulatable in each steam actuator are adjustable to control [[said]] the cross-directional shape within [[said]] the slice associated with that steam actuator.

23. (Currently Amended) The system of claim 22, ~~in which said wherein the~~ outlet chamber of [[said]] each steam actuator includes at least one ~~movable~~ baffle plate which is movable to control [[said]] a cross-directional position and the dimensions of [[said]] that outlet chamber.

24. (Currently Amended) The system of claim 21, ~~in which each of said plurality of~~ wherein each actuator ~~[[s]]~~ comprises a steam actuator having:
an outlet chamber for releasing steam to ~~[[said]]~~ the sheet; ~~of material and including~~
a screen plate with openings ~~there through~~ covering the outlet chamber; and
at least one movable plate, ~~such that moving~~ wherein movement of the at least one movable plate with respect to the screen plate acts to fully or partially obstruct the openings in the screen plate.

25. (Currently Amended) The system of claim 21, ~~in which each of said plurality of~~ wherein each actuator ~~[[s]]~~ comprises a steam actuator having an outlet chamber for releasing a flow of steam to ~~[[said]]~~ the sheet; ~~and of material including~~
wherein at least one air jet associated with ~~[[said]]~~ the outlet chamber is dischargable to control ~~[[the]]~~ a shape of the steam flow.

26. (Withdrawn and Currently Amended) The system of claim 21, ~~in which~~ wherein each actuator comprises a nozzle for delivering a water spray atomized by air pressure to the sheet ~~of material including~~ and means for adjusting the air pressure at the nozzle to control ~~[[the]]~~ a shape of the water spray.

27. (Withdrawn and Currently Amended) The system of claim 21, ~~in which~~ wherein each actuator comprises a nozzle for delivering a water spray atomized by air pressure to the sheet ~~of material including~~ and means for adjusting ~~[[the]]~~ an air flow at the nozzle to control ~~[[the]]~~ a shape of the water spray.

28. (Withdrawn and Currently Amended) The system of claim 21, ~~in which~~ wherein each actuator comprises a nozzle for delivering a water spray atomized by air pressure to the sheet ~~of material~~, the nozzle having a water discharge opening and an air discharge opening that are adjustable by position with respect to each other to control ~~[[the]]~~ a shape of the water spray.

29. (Withdrawn and Currently Amended) The system of claim 21, ~~in which~~ wherein each actuator comprises an induction heating coil for heating at least one of a pair of rolls to ~~change the diameter of the at least one roll in order to~~ vary ~~[[the]]~~ a gap between the pair of rolls and thereby ~~[[the]]~~ a thickness of ~~[[a]]~~ the sheet ~~of material~~ passing through the gap between the rolls, ~~[[with]]~~ each coil having multiple windings for generating magnetic fields, whereby controlling ~~[[the]]~~ a current ~~[[s]]~~ provided to each of the multiple windings controls the cross-directional shape associated with the second control action of ~~[[the]]~~ that actuator ~~response~~.

30. (Withdrawn and Currently Amended) The system of claim 21, ~~in which~~ wherein each actuator comprises an induction heating coil for heating at least one of a pair of rolls to ~~change the diameter of the at least one roll in order to vary~~ [[the]] a gap between the pair of rolls and thereby [[a]] the sheet of material passing through the gap between the rolls, each heating coil being mounted for pivotable movement, whereby adjusting [[the]] an angle of the heating coil controls the cross-directional shape associated with the second control action of [[the]] that actuator response.

31. (Withdrawn and Currently Amended) The system of claim 21, ~~in which~~ wherein each actuator comprises an array of infrared heating lamps for heating the sheet, ~~of material~~ whereby controlling [[the]] a voltage of each heating lamp controls the cross-directional shape associated with the second control action of [[the]] that actuator response.

32. (Withdrawn and Currently Amended) The system of claim 21, ~~in which~~ wherein each actuator comprises a gas-fired infrared emitter matrix for generating infrared radiation to heat the sheet ~~of material~~, the emitter matrix ~~being~~ heated by combusting gas and having screen plates with openings ~~there-through adjacent the emitter matrix~~, whereby moving the screen plates with respect to each other to fully or partially align or misalign the openings in the screen plates acts to vary [[the]] a gas supply to the emitter matrix to control the cross-directional shape associated with the second control action of [[the]] that actuator response.

33. (Cancelled).

34. (Currently Amended) The system of claim 21, wherein each ~~of said~~
~~plurality of~~ actuator ~~[[s]]~~ is operable individually to perform ~~[[said]]~~ the first control action and
~~[[said]]~~ the second control action.

35. (Currently Amended) The system of claim 21, wherein each ~~of said~~
~~plurality of~~ actuator ~~[[s]]~~ is controllable to vary the one or more properties of ~~[[said]]~~ the sheet of
~~material~~ by simultaneously varying both ~~[[said]]~~ the magnitude and ~~[[said]]~~ the cross-directional
shape within ~~[[said]]~~ the slice; ~~[[,]]~~ and

wherein ~~[[said]]~~ the controller is operable to implement ~~s-said~~ the first and second control
actions and said second control action simultaneously at each of ~~said plurality of~~ the actuators,
~~such that said actuators co-operate to adjust the properties of said sheet of material to desired~~
~~targets.~~

36. (Currently Amended) ~~A system on a sheet making machine for controlling one or more properties of a sheet of material after completing forming said sheet using said material, said system comprising:~~

a plurality of steam actuators distributed in ~~[[the]]~~ a cross-machine direction of a sheet-making machine over ~~[[said]]~~ a sheet of material, each steam actuator having an outlet chamber for releasing steam, ~~said outlet chamber being~~ formed by a space between a first plate, a second plate and an outer wall, wherein ~~[[said]]~~ the first plate is designed to contain a nozzle through which steam is received, and ~~[[said]]~~ wherein the second plate contains a plurality of openings to allow passage of the steam received from ~~[[said]]~~ the nozzle onto ~~[[said]]~~ the sheet, ~~of material, said the outlet chamber in each steam actuator being~~ operable to release steam of a magnitude and also to manipulate a cross-directional shape within ~~[[said]]~~ a slice of the sheet, ~~[[each]] the outlet chamber in each steam actuator [[being]]~~ controllable to release steam to vary both ~~[[said]] the magnitude and [[said]] the cross-directional shape within [[said]] the slice;~~

at least one scanner ~~s distributed over said sheet of material operable to measure properties data about the one or more properties of [[said]] the sheet of material;~~ and

a controller in communication with ~~[[said]] the at least one scanner s for calculating said and operable to calculate the magnitude and [[said]] the cross-directional shape for each of said plurality of steam actuator [[s,]] and causing to cause each of said outlet chamber [[s]] to release steam with a corresponding magnitude and cross-directional shape such that said plurality of steam the steam actuators co-operate to adjust the one or more properties of [[said]] the sheet of material to one or more desired targets.~~

37. (Currently Amended) The system of claim 36, ~~in which said~~ wherein the outlet chamber of each ~~of said~~ steam actuator includes at least one ~~movable~~ baffle plate which is movable to control dimensions of ~~[[said]]~~ that outlet chamber, which in turn causes release of steam with ~~[[a]]~~ the corresponding cross-directional shape by that outlet chamber.

38. (Currently Amended) The system of claim 36, ~~in which each of said~~ wherein each outlet chamber ~~[[s]]~~ further includes at least one movable plate, ~~such that moving~~ and wherein movement of the at least one movable plate with respect to the second plate of that outlet chamber acts to fully or partially obstruct ~~[[said]]~~ the plurality of openings in the second plate of that outlet chamber, thereby causing release of steam with ~~[[a]]~~ the corresponding cross-directional shape by that outlet chamber.

39. (Currently Amended) The system of claim 36, ~~in which each of said~~ wherein each outlet chamber ~~[[s]]~~ is operable to release a flow of steam and includes at least one air jet, ~~associated with said outlet chamber~~ the at least one air jet dischargable to control ~~[[the]]~~ a shape of the steam flow from that outlet chamber.

40. (New) A system comprising:

a steam actuator associated with an outlet chamber, the steam actuator operable to release steam of an adjustable magnitude and in an adjustable cross-directional shape through the outlet chamber;

a scanner operable to measure one or more properties of a sheet of material; and

a controller operable to identify a specified magnitude and a specified cross-directional shape for the steam based on measurements from the scanner, the controller also operable to cause the steam actuator to release steam of the specified magnitude and in the specified cross-directional shape.

41. (New) The system of Claim 40, wherein the outlet chamber is formed by a space between a first plate, a second plate, and an outer wall.

42. (New) The system of Claim 41, wherein the first plate is configured to contain a nozzle through which the steam is received, and wherein the second plate contains a plurality of openings to allow passage of the steam received from the nozzle onto the sheet.

43. (New) The system of Claim 42, wherein the outlet chamber includes at least one movable plate; and

wherein movement of the at least one movable plate with respect to the second plate acts to fully or partially obstruct the openings in the second plate.

44. (New) The system of Claim 40, wherein the outlet chamber includes at least one baffle plate that is movable to control dimensions of the outlet chamber.

45. (New) The system of Claim 40, wherein the outlet chamber is operable to release a flow of steam and includes at least one air jet, the at least one air jet adjustable to control the cross-directional shape of the steam flow.

46. (New) The system of Claim 40, wherein:
the system comprises multiple steam actuators; and
the controller is operable to identify the specified magnitude and the specified cross-directional shape for the steam released by each of the multiple steam actuators.

47. (New) An apparatus comprising:

a steam actuator; and

an outlet chamber;

wherein the steam actuator is operable to release steam of an adjustable magnitude and in an adjustable cross-directional shape through the outlet chamber.

48. (New) The apparatus of Claim 47, wherein the outlet chamber is formed by a space between a first plate, a second plate, and an outer wall.

49. (New) The apparatus of Claim 48, wherein the first plate is configured to contain a nozzle through which the steam is received, and wherein the second plate contains a plurality of openings to allow passage of the steam received from the nozzle onto a sheet of material.

50. (New) The apparatus of Claim 49, wherein the outlet chamber includes at least one movable plate; and

wherein the steam actuator comprises at least one motor operable to move the at least one movable plate with respect to the second plate to fully or partially obstruct the openings in the second plate.

51. (New) The apparatus of Claim 47, wherein the outlet chamber includes at least one baffle plate; and

wherein the steam actuator comprises at least one motor operable to move the at least one baffle plate to control dimensions of the outlet chamber.

52. (New) The apparatus of Claim 47, wherein the outlet chamber is operable to release a flow of steam; and

wherein the steam actuator comprises at least one air jet operable to control a shape of the steam flow.

53. (New) The apparatus of Claim 47, wherein the apparatus comprises multiple steam actuators.

54. (New) The apparatus of Claim 53, further comprising:
a manifold operable to provide the steam to the multiple steam actuators; and
a screen operable to deliver the steam from the multiple steam actuators to multiple zones of a sheet of material.